

I CLAIM:

1. A method of removing water and solids from crude oil containing water and solids to provide a clean dry oil, comprising:

a separation phase, a dehydration phase and a diluent recovery phase, said dehydration phase including:

providing a source of crude oil containing water;

adding a diluent to said source of crude oil;

a separation phase to remove at least a portion of said water;

dehydrating said crude oil containing water in a dehydrator having a vaporizing surface of dry crude oil at a temperature sufficient to vaporize water contacting said surface;

exposing said source of crude oil to said dry crude oil to vaporize said water and at least a portion of diluent in said source;

said diluent recovery phase including:

heating said dehydrated crude to liberate diluent;

stripping said diluent; and

recirculating recovered diluent to said crude oil containing water in said separation phase.

2. The method as set forth in claim 1, wherein said step of stripping said diluent from said dehydrated crude comprising passing said dehydrated crude into a stripping device for separation of said dehydrated crude and said diluent.

3. The method as set forth in claim 1, wherein said stripping comprises treating said dehydrated crude containing diluent to at least one of steam stripping, super critical separation, flashing, vacuum flashing, distillation or a combination thereof.
4. The method as set forth in claim 1, wherein a diluent to crude oil containing water ratio is between 0.1 and 1.0.
5. The method as set forth in claim 4, wherein said ratio is between 0.3 and 0.6.
6. The method as set forth in claim 1, wherein said recovery phase comprises recovering diluent in an amount of greater than 90%.
7. The method as set forth in claim 1, wherein said clean dry oil is devoid of water content and salt compounds.
8. The method as set forth in claim 1, wherein said dehydrated crude has a basic sediment water content of less than 0.5% by volume water.
9. The method as set forth in claim 8, further including the step of upgrading said dehydrated crude oil from between 7 API and 10 API to 21 API.
10. The method as set forth in claim 8, further including the step of upgrading said dehydrated crude oil by unit operations selected from the group consisting of

11. The method as set forth in claim 9, wherein said dehydrated crude has a viscosity of 350 CSt at 10°C.
12. The method as set forth in claim 1, further including the step of providing a diluent makeup stream for contact with said crude oil prior to pretreating.